ATTACHMENT A
Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Original) A mechanical oscillator system for a horological mechanism or other precision instrument, the system comprising a non-magnetic ceramic balance and a non-magnetic balance spring of flat spiral or helicoidal form, the balance spring being formed of a composite material or a polymer, carbon or ceramic material, wherein the coefficient of thermal expansion of the balance and the coefficient of thermal expansion of the material of the balance spring in the direction along the length of the balance spring are of opposite signs and of similar orders of magnitude so as to compensate for thermal variation in the system.

2. (Original) A system according to claim 1, wherein the material of the balance spring is a composite material having a matrix phase comprising polymer, carbon or ceramic.

3. (Currently Amended) A system according to claim 1 or 2, wherein the balance spring material comprises continuous fibres extending along the length of the balance spring from one end of said spring to the other end of said spring.

4. (Original) A system according to claim 3, wherein said continuous fibres are carbon fibres.

5. (Original) A system according to claim 4, wherein said fibres have a graphitic carbon structure.

6. (Currently Amended) A system according to any of claims 3 to 5 claim 3, wherein the fibres are produced from one of the precursors 'PITCH' or polyacrilonitrile 'PAN'.

7. (Currently Amended) A system according to any preceding claim claim 1, wherein the coefficient of thermal expansion of the balance is positive and the coefficient of

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thermal expansion of the material of the balance spring in the direction along the length of the balance spring is negative.

8. (Original) A system according to claim 7, wherein the thermal coefficient of expansion of the balance is less than 1×10^{-6} K^{-1} and the coefficient of thermal expansion of the material of the balance spring in the direction along the length of the balance spring is greater than -1×10^{-6} K^{-1}.

9. (Currently Amended) A system according to ~~any of claims 1 to 8~~claim 1, wherein the material of the balance spring is a composite material having a coefficient of thermal expansion in the direction along the length of the balance spring, said coefficient of thermal expansion being linear and negative up to 700° Kelvin.

10. (Currently Amended) A system according to ~~the preceding~~ claim 1, wherein the damping of the modulus of elasticity of the balance spring is of the order of 0.001 Pa.

11. (Currently Amended) A system according to ~~any of claims 1 to 3~~claim 1, wherein the balance spring material comprises ceramic fibres.

12. (Original) A system according to claim 11, wherein said ceramic fibres have a coefficient of thermal expansion whose magnitude is less than 6×10^{-6} K^{-1}.

13. (Currently Amended) A system according to ~~any of claims 3 to 6, 11 and 12~~claim 3, wherein said fibres are substantially parallel to each other.

14. (Currently Amended) A system according to ~~any of claims 3 to 6, 11 and 12~~claim 3, wherein said fibres are twisted together.

15. (Currently Amended) A system according to ~~any preceding~~ claim 1, wherein the balance spring is a flexion spring configured to work in flexion to oscillate the balance.

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16. (Currently Amended)   A system according to ~~any preceding~~ claim_1, wherein the density of the balance spring material is less then 3g/cm^3.

17. (Currently Amended)   A system according to ~~any preceding~~ claim_1, wherein the balance is formed by high precision injection moulding.

18. (Currently Amended)   A system according to ~~any preceding claim~~ claim 1, wherein the material of the balance spring has a negative thermoelatic coefficient.

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